Amendments to the Claims:

Without prejudice, please amend the claims as reflected in the following listing of claims, which will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-64. (Canceled).

65. (Currently amended) A computer-implemented process for producing a representation of a reference spectrum for a ~~hypothetical~~ reference solution ~~containing a compound~~ having a first pH condition, for use in determining the composition of a test sample, the process comprising:

producing a position value for at least one peak of ~~a~~the reference spectrum ~~as a function of~~ in response to a measured pH condition of the test sample, and a property of ~~said~~ at least one peak in a base reference spectrum for the reference solution, the base reference spectrum being associated with a pH condition of the reference solution that is different from said measured pH condition.

66. (Currently amended) The computer-implemented process of claim **65** wherein producing a position value comprises interpolating said position value from position values associated with base reference spectra associated with a pH condition nearest to said measured pH condition.

67. (Canceled).

68. (Currently amended) The computer-implemented process of claim **65** wherein producing a position value comprises producing said position value by addressing a lookup table of position values with a measured pH condition value representing said measured pH condition of said test sample.

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69. (Currently amended) The computer-implemented process of claim **65** further comprising accessing a pre-defined record specifying peaks in ~~a~~said reference spectrum and adjusting a position value in said pre-defined record, said position value in said record being said position value of said at least one peak.

70. (Currently amended) The computer-implemented process of claim **69** wherein adjusting comprises locating a pH condition value dependent function in said pre-defined record, producing said position value from said pH condition value dependent function and associating said position value with said pre-defined record.

71. (Currently amended) The computer-implemented process of claim **70** wherein associating comprises storing said position value in said pre-defined record.

72. (Currently amended) The computer-implemented process of claim **69** wherein adjusting comprises locating in said pre-defined record a link to a lookup table specifying peak positions for various pH conditions and retrieving said position value from said lookup table and associating said position value with said pre-defined record.

73. (Currently amended) The computer-implemented process of claim **72** wherein associating comprises storing said position value in said pre-defined record.

74. (Currently amended) A computer-readable medium ~~for providing~~ encoded with computer readable instructions for causing a processor circuit to produce a representation of a reference spectrum for a ~~hypothetical~~ reference solution ~~containing a compound~~ having a first pH condition, for use in determining the composition of a test sample, the instructions comprising:

a set of codes for directing the processor circuit to produce a position value for at least one peak of ~~a~~the reference spectrum ~~as a function of~~ in response to a measured pH condition of the test sample, and a property of ~~said~~ at least one peak in a base reference spectrum for the reference solution. The base reference spectrum being associated with a pH condition of the reference solution that is different from said measured pH condition.

75.   (Currently amended) A signal encoded with computer-readable instructions operable to cause a processor circuit to produce a representation of a spectrum for a ~~hypothetical~~ reference solution ~~containing a compound~~ having a first pH condition, for use in determining the composition of a test sample, the signal comprising a signal segment comprising codes operable to cause the processor circuit to produce a position value for at least one peak of ~~a~~the reference spectrum ~~as a function of~~ in response to a measured pH condition of the test sample, and a property of ~~said~~ at least one peak in a base reference spectrum for the reference solution, the base reference spectrum being associated with a pH condition of the reference solution that is different from said measured pH condition.

76.   (Currently amended) An apparatus for producing a representation of a spectrum for a ~~hypothetical~~ reference solution ~~containing a compound~~ having a first pH condition, for use in determining the composition of a test sample, the apparatus comprising a processor circuit programmed to produce a position value for at least one peak of ~~a~~the reference spectrum ~~as a function of~~ in response to a measured pH condition of the test sample, and a property of ~~said~~ at least one peak in a base reference spectrum for the reference solution, the base reference spectrum being associated with a pH condition of the reference solution that is different from said measured pH condition.

77.   (Currently amended) An apparatus for producing a representation of a spectrum for a ~~hypothetical~~ reference solution ~~containing a compound~~ having a first pH condition, for use in determining the composition of a test sample, the apparatus comprising:

means for receiving a measured pH condition value representing a pH condition of the test sample;

means for receiving a representation of a position value of at least one peak in a base reference spectrum for the reference solution; and

means for producing a position value for at least one peak of ~~a derived~~ the reference spectrum ~~as a function of~~ in response to said measured pH condition value of the test sample, and the position value of said at least one peak in ~~a~~said base reference spectrum, the base

reference spectrum being associated with a pH condition of the reference solution that is

different from said measured pH condition.